ORDER NO. AD0304087C8

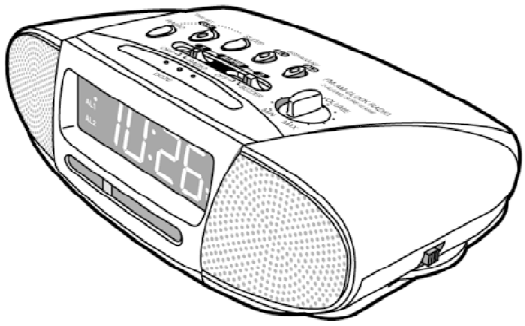
Service Manual

Clock Radio

RC-700E / RC-700EB / RC-700EJ / RC-700GN

Colour

(S).....Silver Type



SPECIFICATIONS

Specification

Radio frequency range:	
FM;	**87.50-108.00 MHz**
AM;	**520-1610 kHz**
Intermediate frequency:	
FM;	**10.7 MHz**
AM;	**459.0 kHz**
Sensitivity:	
FM;	**5.62 μ V/50mW output (-3dB limit sens.)**
AM;	**100 μ V/m/50mW output (Max sens.)**
Power requirement:	
AC;	**230 V, 50 Hz / Power consumption; 6W**
Battery;	**9V (one 6F22/6LR61, 006P battery)**
Power output:	**250 mW+250 mW (RMS...max.)**
Speaker;	**4cm**
Dimensions (W×H×D):	**215×64×149 mm**
Mass (without battery):	**804g**

Note: / Specifications are subject to change without notice. / Mass and dimensions are approximate.

[Power consumption in standby mode: 1.8W]

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

1. Caution for AC Mains Lead

(For United Kingdom)

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⓐ or the BSI mark ⓚ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use
Remove the connector cover.

How to replace the fuse
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

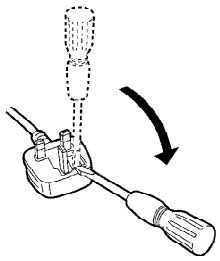
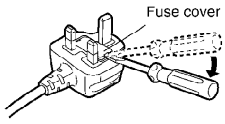


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

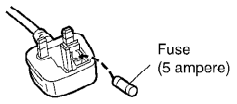
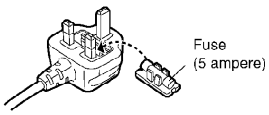


Figure B

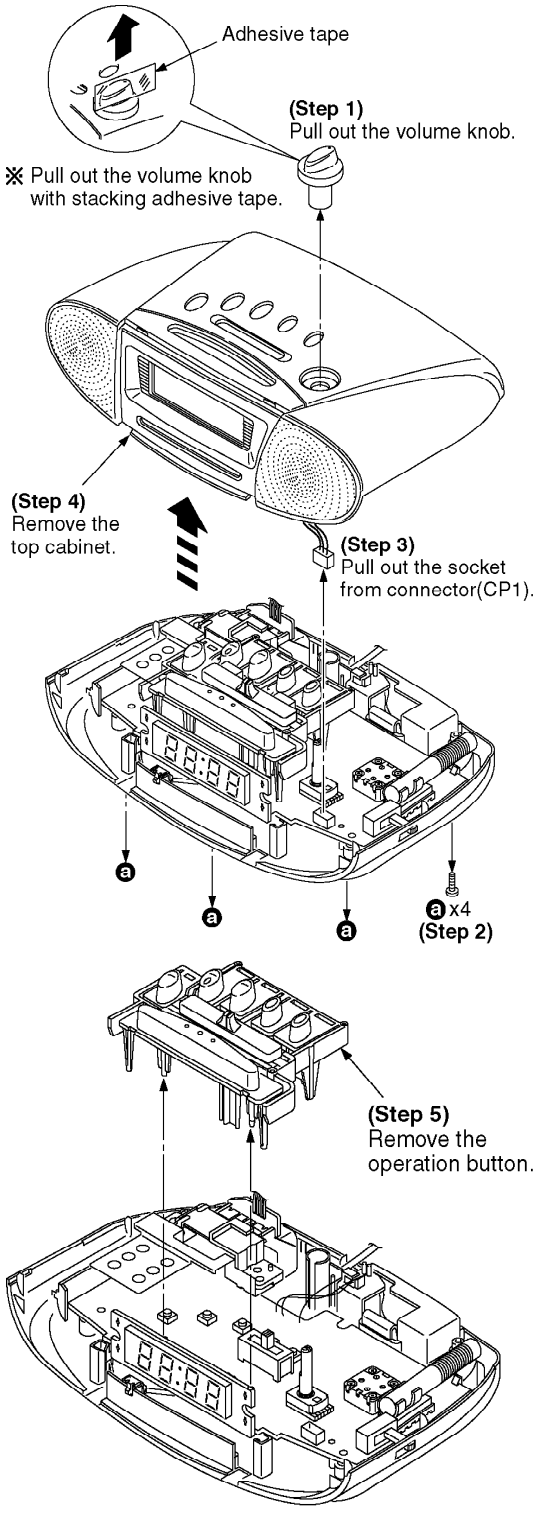


2. Operation Checks and Component Replacement Procedures

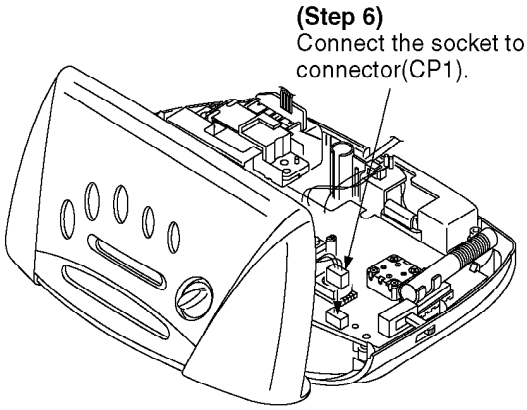
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

2.1. Checking for the main P.C.B. ass'y

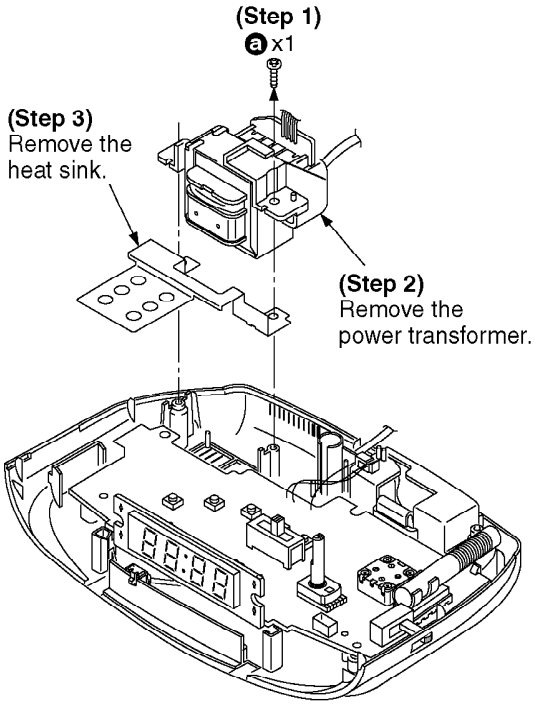

Adhesive tape
(Step 1)
Pull out the volume knob.
※ Pull out the volume knob
with stacking adhesive tape.
(Step 4)
Remove the
top cabinet.
(Step 3)
Pull out the socket
from connector(CP1).
ⓐ x4
(Step 2)
(Step 5)
Remove the
operation button.

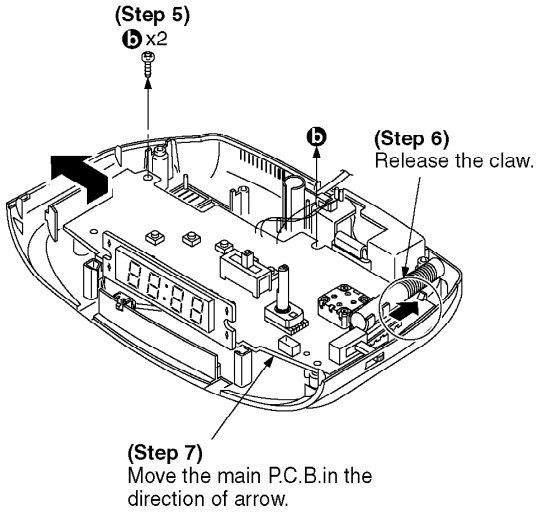
• Check the main P.C.B. as shown below.



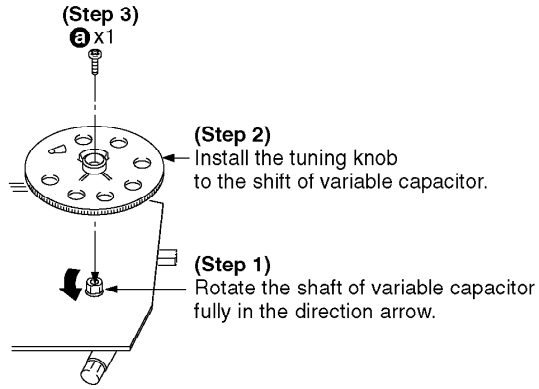
2.2. Replacement for the main P.C.B.

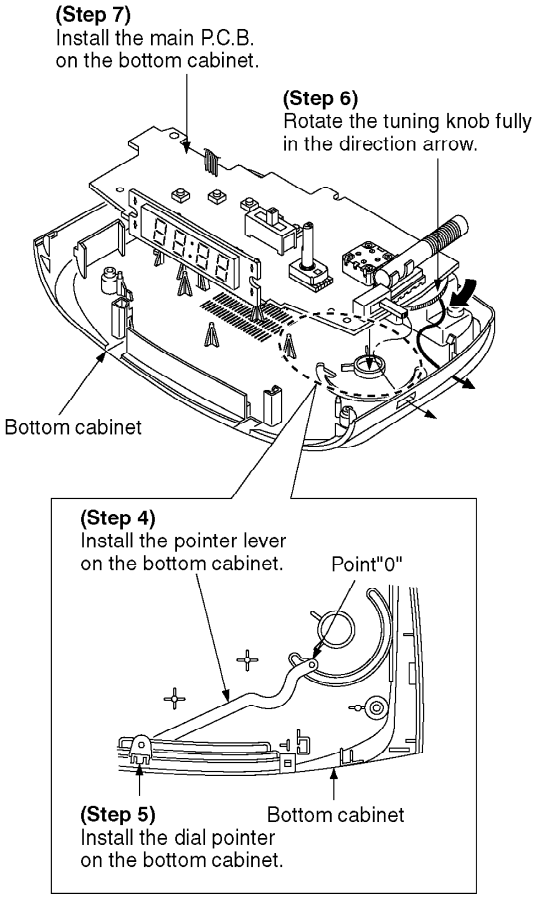
- Follow the (Step1)-(Step5) of item 2.1.



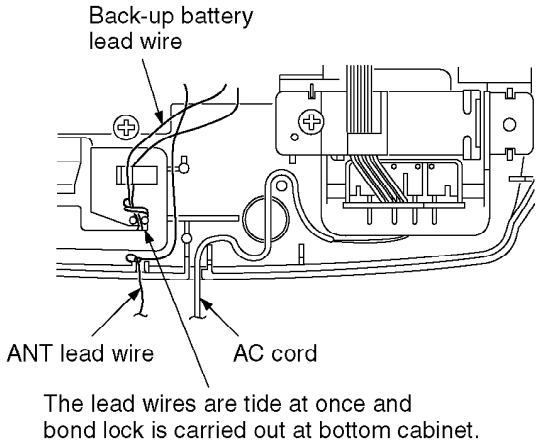


Installation of the main P.C.B.



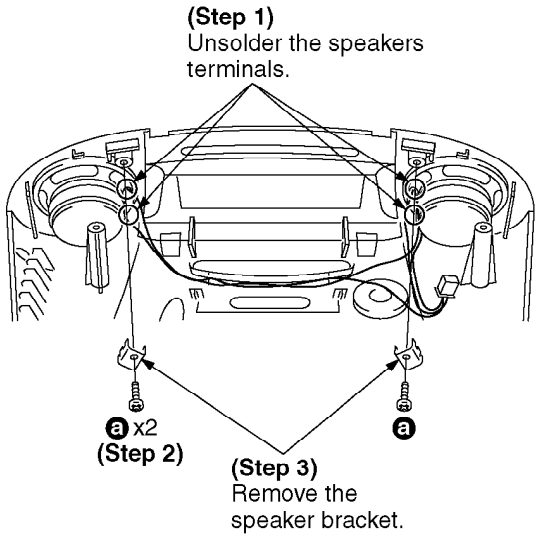


Arrange the lead wires.



2.3. Replacement for the speakers.

- Follow the (Step1)-(Step3) of item 2.1.



3. Schematic Diagram

3.1. Schematic Diagram Notes

S1:
DOZE switch.

S2:
SLEEP switch.

S3:
HOUR switch.

S4:
MIN switch.

S5:
ALARM switch.

S6:
TIME SET switch.

S11:
BAND switch in “AM” position.

AL1-1, AL1-2:
RADIO/BUZZER, ALARM, OFF, RADIO/OFF select switch in “RADIO/OFF” position.

VR1:
Battery back-up VR.

VR2-1, VR2-2:

Volume control VR.

- DC voltage measurements are taken with electronics voltmeter. The negative terminal of the battery provides negative meter connection point.

No mark.....

FM

( ).....

AM

- Battery current:

Vol. min.....

FM: 15mA

AM: 15mA

Vol. max.....

FM: 36mA

AM: 29mA

Measurement instruction

AM:

74dB/m, 30% Mod.

FM:

60dB, 30% Mod.

- Important safety notice

Components identified by ⚠ mark have special characteristics importan for safety. / When replacing any of these components, use only manufacturer's specified parts.

- This shematic diagram may be modified at any time with the development of new technology.

3.2. Schematic Diagram

4. Printed Circuit Diagram

5. Type Illustration of IC's, Transistors and Diodes

6. Measurement and Adjustment

6.1. ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
1. Set power source voltage to 230V/50Hz AC. 2. Set volume control to maximum. 3. Set band switch to AM or FM. 4. Output of signal generator should be no higher than necessary to obtain an output reading.

- AM-IF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or oscilloscope)	Adjustment (Shown in Fig.1)	R
Connections	Frequency				
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	459 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	T3 (AM IFT)	Adj ma out

- AM-RF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or oscilloscope)	Adjustment (Shown in Fig.1)	R
Connections	Frequency				
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	511 kHz	Variable capacitor fully closed.	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	L10 (AM OSC Coil)	Adju maxi outp
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	1650 kHz	Variable capacitor fully opened.	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	CT1-3 (AM OSC Trimmer)	Adju maxi outp
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	600 kHz	Tune to signal	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	[*1] L5 (AM ANT Coil)	Adju maxi outp by L movi alon ferri
Fashion a loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz	Tune to signal	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	CT1-4 (AM ANT Trimmer)	Adju maxi outp
[*1] Fix antenna coil with wax after completing alignment					

- FM-RF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or oscilloscope)	Adjustment (Shown in Fig.1)	F
Connections	Frequency				
Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2.	86.2 MHz	Variable capacitor fully closed.	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	L7 (FM OSC Coil)	[*2] for out
	109.2 MHz	Variable capacitor fully opened.	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	CT1-2 (FM OSC Trimmer)	[*2] for out
	106 MHz	Tune to signal.	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	CT1-1 (FM ANT Trimmer)	[*2] for out
[*2] Three output response will be present; proper tuning is the outer frequency.					

- FM-IF CHECK

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or oscilloscope)	Adjustment (Shown in Fig.1)	F
Connections	Frequency				
Connect to test point TP1 through ceramic capacitor. Negative side to test point TP2.	10.7 MHz (Sweep)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to test point TP3. Negative side to test point TP4.	-	Wa sho Fig

- BUCK-UP BATTERY FREQUENCY ALIGNMENT

DC Power Supply		Indicator (Frequency Counter)	Adjustment (Shown in Fig.1)	Remarks
Connections	Voltage			
Connect to test point TP11 through ceramic capacitor. Negative side to test point TP12.	9V	Connect vert. amp. of scope to test point TP9. Negative side to test point TP10.	VR1 / (Battery Back-up)	Adjust VR1 for 240 on frequency coun reading. (Fig.3)

6.2. Adjustment points

Fig.1

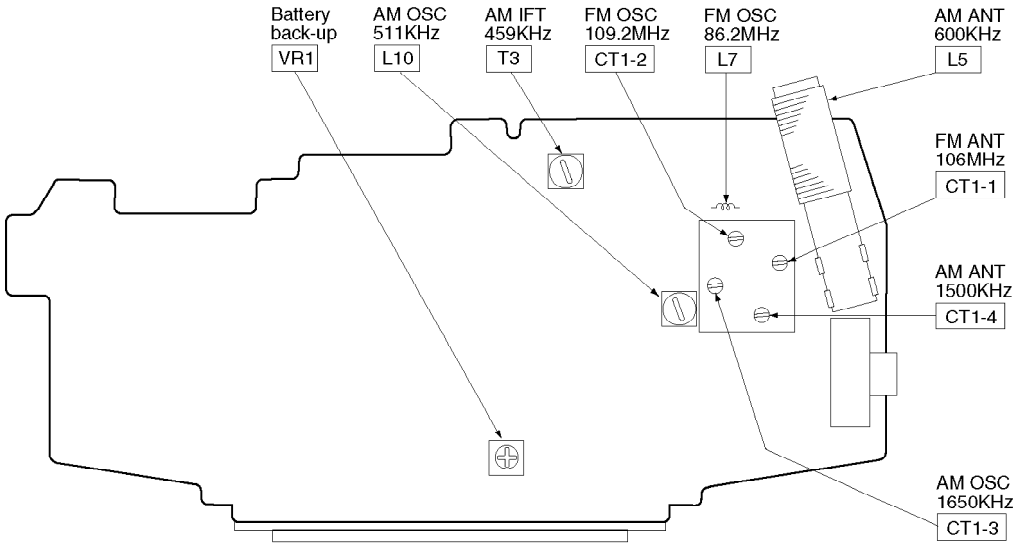


Fig.2

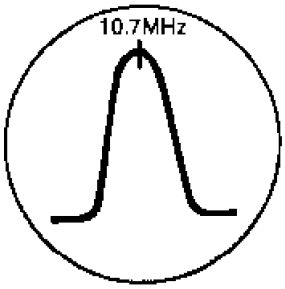
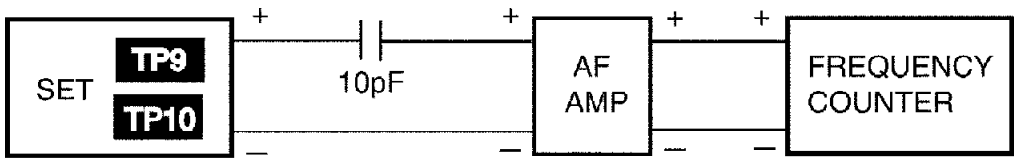


Fig.3



7. Replacement Parts List

Note:

- All parts are supplied by ASPC .

- Important safety notice:

- Components identified by ⚠ mark have special characteristics important for safety.

- Furthermore, special parts which have purposes of fireretardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

- When replacing any of components, be sure to use only

manufacture's specified parts shown in the parts list.

- The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) / Parts without these indications can be used for all areas.
- Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
- Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM), 1M=1,000k (OHM)
- The marking <RTL> indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

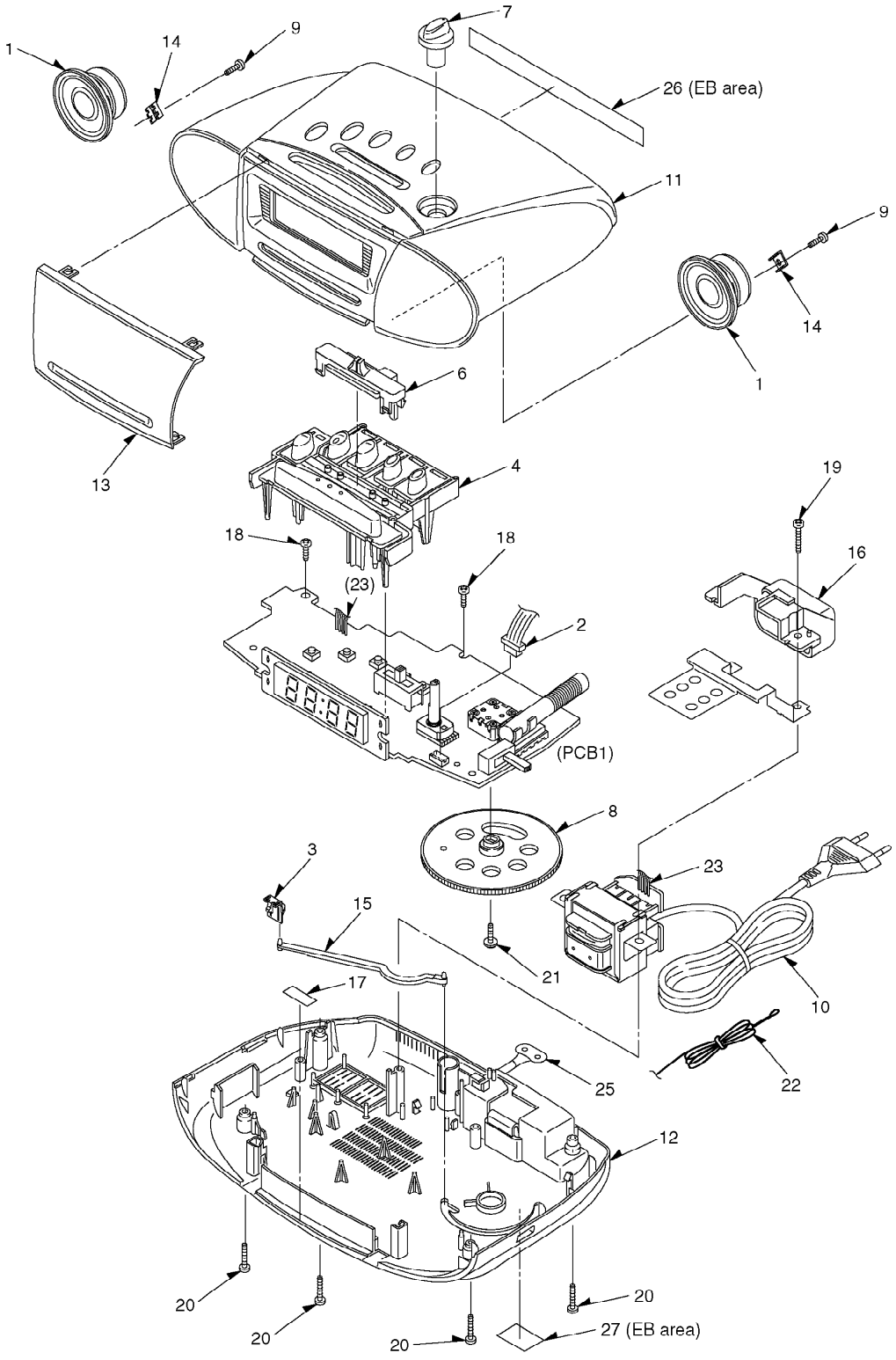
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	L0AA04A00018	SPEAKER	2	
2	REXW0008	SPEAKER WIRE	1	
3	RGJW0004-D	POINTER	1	
4	RGUW0010-S	OPERATION BUTTON	1	
6	RGVW0005-S	SLIDE KNOB	1	
7	RGWW0007-S	VOLUME KNOB	1	
8	RGXW0001-H	TUNING KNOB	1	
9	RHDW30002	SCREW	2	
10	RJA0037-D	AC CORD	1	(GN) ⚠
10	RJA0054-D	AC CORD	1	(EB) ⚠
10	RJA23YB-D	AC CORD	1	(E)(EJ) ⚠
11	RKMW0011C-S	TOP CAB	1	
12	RKSW0024L-H	BOTTOM CAB	1	(E)
12	RKSW0024M-H	BOTTOM CAB	1	(EJ)
12	RKSW0024N-H	BOTTOM CAB	1	(EB)
12	RKSW0024P-H	BOTTOM CAB	1	(GN)
13	RKWW0009C-Q	LED PANEL	1	(E)(EB)(GN)
13	RKWW0009H-Q	LED PANEL	1	(EJ)
14	RMAW0003	SPK BRACKET	2	
15	RMLW0001	POINTER LEVER	1	
16	RMNW0004	SAFETY CHASSIS	1	
17	RMQW0009	PC SHEET	1	
18	XTV3+10G	SCREW	2	
19	XTV3+14G	SCREW	1	
20	XTV3+16G	SCREW	4	
21	XYN26+C6	SCREW	1	
22	1RL-RC7200	FM ANT WIRE	1	
23	RWJ9504090SS	PT TO MAIN WIRE	1	
25	RJCW99001	BATTERY SNAP WIRE	1	
26	RGNW0054-S	NAME PLATE	1	(EB)
27	RQLXS0045	CAUTION LABEL	1	(EB)
A1	RQTW0039-1E	O/I BOOK	1	(E) English, / Germany, / French, / Spanish, / Duch, / Swedish, / Danish

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	RQTW0040-B	O/I BOOK	1	(EB)(GN) / English
A1	RQTW0041-E	O/I BOOK	1	(EJ) Itarian
AL1	RSS4B002-B	SELECT SW	1	
C1	ECKR1H103ZF5	50V 0.01U	1	(EJ)(GN)
C1	ECQV1H683JZ3	50V 0.068U	1	(E)(EB)
C2	ECKR1H103ZF5	50V 0.01U	1	(EJ)(GN)
C2	ECQV1H683JZ3	50V 0.068U	1	(E)(EB)
C3	ECKR1H103ZF5	50V 0.01U	1	(EJ)(GN)
C3	ECQV1H683JZ3	50V 0.068U	1	(E)(EB)
C4	ECKR1H103ZF5	50V 0.01U	1	(EJ)(GN)
C4	ECQV1H683JZ3	50V 0.068U	1	(E)(EB)
C5	ECA1HM101B	50V 100U	1	
C6	ECA1CM220BV	16V 22U	1	
C8	ECBT1H102KB5	50V 1000P	1	
C9	ECA1CM102E	16V 1000U	1	
C10	ECA1HM4R7BV	50V 4.7U	1	
C11	ECBT1E223ZF5	25V 0.022U	1	
C12	ECA1CM220BV	16V 22U	1	
C14	ECQG1H103KZT	50V 0.01U	1	
C15-17	ECBT1C103NS5	16V 0.01U	3	
C18	ECA1CM221B	16V 220U	1	
C21	ECBT1H470J5	50V 47P	1	
C22	ECBT1H100JC5	50V 10P	1	
C23	ECBT1H180JC5	50V 18P	1	(E)(EB)(GN)
C23	ECBT1H200JC5	50V 20P	1	(EJ)
C24	ECBT1H220JC5	50V 22P	1	(E)(EB)(GN)
C24	RH1H240JMAX	50V 24P	1	(EJ)
C25	ECBT1H102KB5	50V 1000P	1	
C26	ECFR1C104MR	16V 0.1U	1	
C27	ECA1HM010BV	50V 1U	1	
C28	ECBT0J223MS5	6.3V 0.022U	1	
C31	ECA1CM220BV	16V 22U	1	
C32	ECKR1H151KB5	50V 150P	1	
C33	ECBT1H331KB5	50V 330P	1	
C34	ECA1HMR22BV	50V 0.22U	1	
C35	ECA1HM0R1BV	50V 0.1U	1	
C36	ECFR1E223KR	25V 0.022U	1	
C37,38	ECA0JM471B	6.3V 470U	2	
C39	ECA1HM0R1BV	50V 0.1U	1	
C40	ECA1HM010BV	50V 1U	1	
C41,42	ECA1HM2R2BV	50V 2.2U	2	
C43,44	ECA1HMR22BV	50V 0.22U	2	
C45	ECA1CM471B	16V 470U	1	
C46	ECBT1H271KB5	50V 270P	1	
C48	ECBT0J223MS5	6.3V 0.022U	1	
C50,51	ECBT1H563KB5	50V 0.056U	2	
C52,53	ECBT1H102KB5	50V 1000P	2	
C54,55	ECFR1C683KR	16V 0.068U	2	
CF1	J0B1075A0105	FM CF	1	
CF2	J0B4593A0004	AM CF	1	
CF3	J0B1075A0106	DISCRIMINATOR	1	

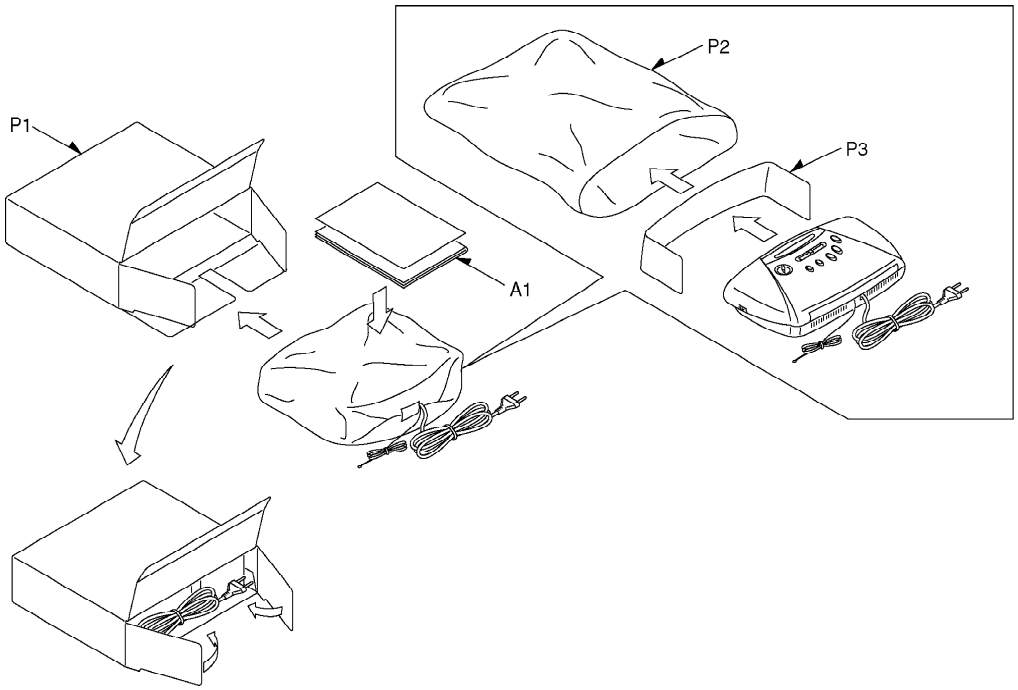
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CP1	RJP3G4YA	CONNECTOR(3P)	1	
D1-D4	RL1N4003S-P	RECTIFIER DIODE	4	
D5	MTZJ10BTA	ZENER DIODE	1	
D6-D9	RVD1SS133TA	SWITCHING DIODE	4	
D14	MTZJ6R8BTA	ZENER DIODE	1	
D15	RVD1SS133TA	SWITCHING DIODE	1	
FP1	K5G400A00001	FUSE PROTECTEOR	1	⚠
IC1	RVILM8560B	CLOCK IC	1	
IC2	TA2111N	TUNER IC	1	
IC3	C1BA00000360	POWER AMP IC	1	
L1,L2	RLQY11G4W-F	CHOKE COIL	2	
L5	G2CADB000003	BAR ANTENNA	1	
L7	RL04N187-0	FM OSC COIL	1	(EJ)
L7	RLD4Y53W-F	FM OSC COIL	1	(E)(EB)(GN)
L8	RLQY30S1W-F	FM COIL	1	
L10	G2A351C00001	AM OSC COIL	1	
LED1	3HCR21532	LED DISPLAY	1	(EB)(GN)
LED1	4HCR21532	LED DISPLAY	1	(E)(EJ)
P1	RPK1894	GIFT BOX	1	(E)
P1	RPK1895	GIFT BOX	1	(EB)
P1	RPK1896	GIFT BOX	1	(EJ)
P1	RPK1897	GIFT BOX	1	(GN)
P2	RPF0164	PROTECTION BAG	1	
P3	RPHW0001	MIRAMAT SHEET	1	
PCB1	REPW0019B	P.C.B. ASS'Y	1	[RTL](E)
PCB1	REPW0019C	P.C.B. ASS'Y	1	[RTL](EB)
PCB1	REPW0019D	P.C.B. ASS'Y	1	[RTL](EJ)
PCB1	REPW0019E	P.C.B. ASS'Y	1	[RTL](GN)
Q3,Q4	2SC2001LTA	TRANSISTOR	2	
R1,R2	ERDS2TJ220T	1/4W 22	2	
R3	ERDS2TJ222T	1/4W 2.2K	1	
R4,R5	ERDS2TJ472T	1/4W 4.7K	2	
R6,R7	ERDS2TJ104T	1/4W 100K	2	
R8	ERDS2TJ101T	1/4W 100	1	
R9	ERDS2TJ474T	1/4W 470K	1	
R13	ERDS2TJ122T	1/4W 1.2K	1	
R15	ERDS2TJ222T	1/4W 2.2K	1	
R16	ERDS2TJ183T	1/4W 18K	1	
R18	ERDS2TJ101T	1/4W 100	1	
R19	ERDS2TJ472T	1/4W 4.7K	1	
R20	ERDS2TJ330T	1/4W 33	1	
R21	ERDS2TJ560T	1/4W 56	1	
R23	ERDS2TJ332T	1/4W 3.3K	1	
R24	ERDS2TJ820T	1/4W 82	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R25	ERDS2TJ151T	1/4W 150	1	
R29	ERDS2TJ332T	1/4W 3.3K	1	
R30	ERDS2TJ331T	1/4W 330	1	
R31	ERDS2TJ560T	1/4W 56	1	
R33,34	ERDS2TJ822T	1/4W 8.2K	2	
R36,37	ERDS2TJ152T	1/4W 1.5K	2	
R38,39	ERDS2TJ562T	1/4W 5.6K	2	
R42,43	ERDS2TJ272T	1/4W 2.7K	2	
R46	ERDS2TJ101T	1/4W 100	1	
S1-S6	EVQ21405R	SW	6	
S11	K0D123B00039	BAND SWITCH	1	
T1	G4C3AAH00002	POWER TRANSFORMER	1	⚠
T3	RLI2B458-M	AM IFT COIL	1	
VC1	F6D4DEBB0001	VARIABLE CAPACITOR	1	
VR1	EVNDXAA03B25	VARIABLE RESISTOR	1	
VR2	D2BFC14Z0001	VOLUME	1	

8. Cabinet Parts Location

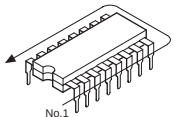

1
14
9
7
26 (EB area)
11
9
14
1
6
13
4
19
18
18
16
(23)
2
(PCB1)
8
3
23
15
21
10
17
22
25
12
20
20
20
20
27 (EB area)

9. Packaging

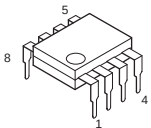


K0304YH

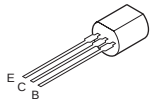
RVILM8560B	28PIN
TA2111N	24PIN



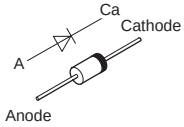
C1BA00000360



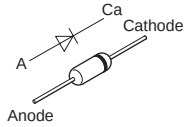
2SC2001LTA



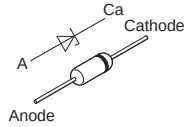
RL1N4003S-P

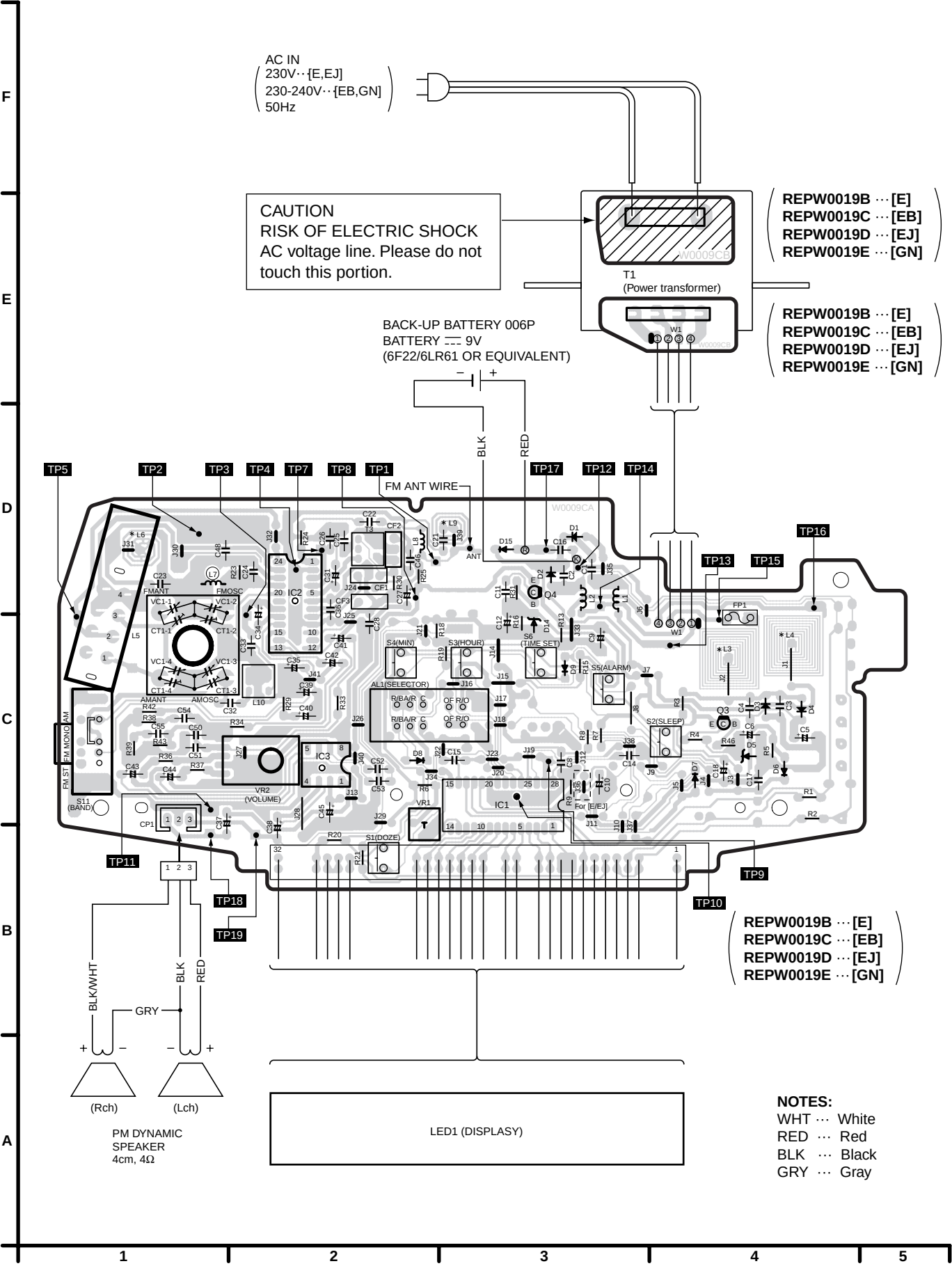


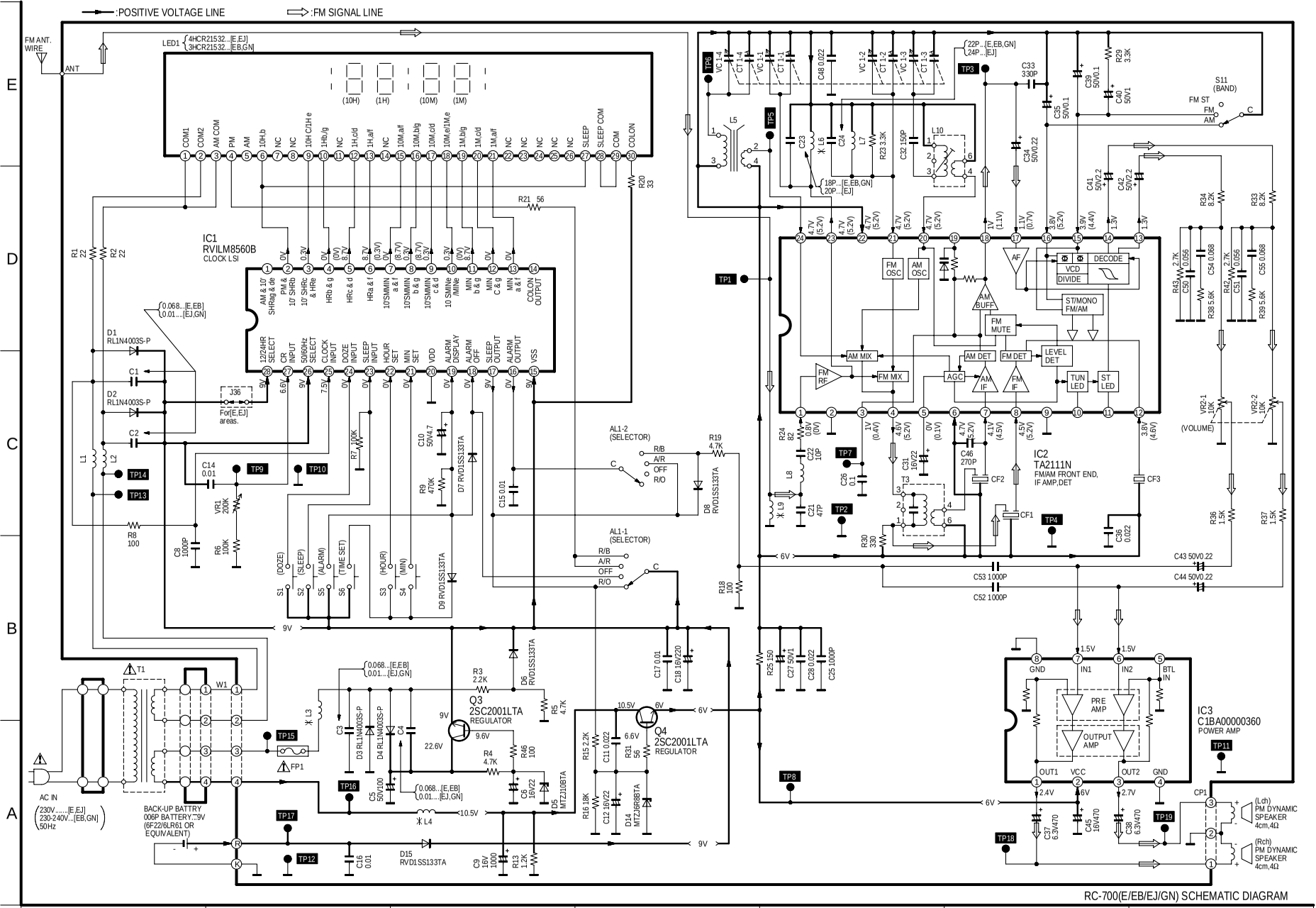
RVD1SS133TA



MTZJ6R8BTA
MTZJ10BTA




AC IN
230V··{E,EJ]
230-240V··{EB,GN]
50Hz
CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please do not touch this portion.
T1
(Power transformer)
REPW0019B ··· [E]
REPW0019C ··· [EB]
REPW0019D ··· [EJ]
REPW0019E ··· [GN]
BACK-UP BATTERY 006P
BATTERY ⎓ 9V
(6F22/6LR61 OR EQUIVALENT)
BLK
RED
FM ANT WIRE
TP5
TP2
TP3
TP4
TP7
TP8
TP1
TP17
TP12
TP14
TP16
TP13
TP15
TP11
TP18
TP19
TP9
TP10
W0009CA
W0009CB
IC1
IC2
IC3
Q3
Q4
S1(DOZE)
S2(SLEEP)
S3(HOUR)
S4(MIN)
S5(ALARM)
S6
(TIME SET)
AL1(SELECTOR)
VR1
VR2
(VOLUME)
S11
(BAND)
FP1
LED1 (DISPLASY)
BLK/WHT
GRY
BLK
RED
(Rch)
(Lch)
PM DYNAMIC
SPEAKER
4cm, 4Ω
NOTES:
WHT ··· White
RED ··· Red
BLK ··· Black
GRY ··· Gray


:POSITIVE VOLTAGE LINE
:FM SIGNAL LINE
FM ANT. WIRE
ANT
LED1
4HCR21532...[E,EJ]
3HCR21532...[EB,GN]
IC1
RVILM8560B
CLOCK LSI
IC2
TA2111N
FM/AM FRONT END, IF AMP,DET
IC3
C1BA00000360
POWER AMP
Q3
2SC2001LTA
REGULATOR
Q4
2SC2001LTA
REGULATOR
S11 (BAND)
FM ST
FM
AM
AC IN
230V.....[E,EJ]
230-240V...[EB,GN]
50Hz
BACK-UP BATTRY
006P BATTERY:9V
(6F22/6LR61 OR
EQUIVALENT)
For[E,EJ] areas.
(VOLUME)
(Lch) PM DYNAMIC SPEAKER 4cm,4Ω
(Rch) PM DYNAMIC SPEAKER 4cm,4Ω
RC-700(E/EB/EJ/GN) SCHEMATIC DIAGRAM